MELTIO

Material Datasheet

Titanium Alloy – Ti-6Al-4V

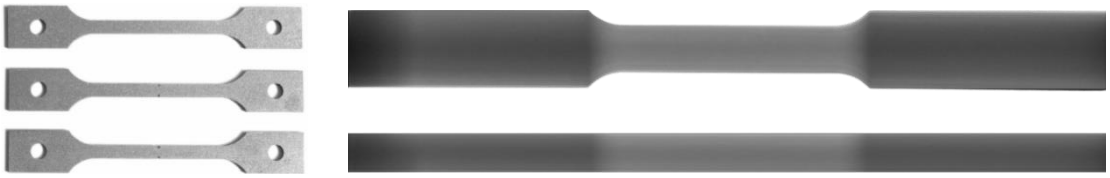
Description Ti-6Al-4V alloy, also known as Ti64, is an α + β titanium alloy with high strength, low density, high fracture toughness, excellent corrosion resistance and superior biocompatibility. Ti64 is recognized as the most popular titanium alloy.

Applications Typically used for direct manufacturing of parts and prototypes for aerospace, marine, motorsport, chemical, biomedical and gas industries.

Composition ASTM B863 Wire electrode classification with 1.2mm diameter. 6.03% Al, 3.95% V, 0.01% Sn, 0.131% Fe, 0.012% C, 0.043% N, <0.001% H, 0.096% O.

Computed Tomography

Scans cover external and internal surfaces, with micrometre-level resolutions. Full 3D density maps of the samples inspected consistently report 99.998% density, with no trace of voids, porosity, contamination or cracking.



Images represent the tested specimens and the imaging from the computed tomography data for YZ and XY section planes at 60μm resolution.

Mechanical Properties

Results show Meltio's WP-LMD 3D printed specimens to perform at the same level as conventional manufacturing methods, with low deviation across tested coupons.

	Wrought Properties	Cast Properties	Meltio XY Properties
Tensile Strength (MPa)	930	860	950 ± 5
Yield Strength (MPa)	860	758	882 ± 5
Elongation (%)	>10%	>8%	12 ± 0.5

Data represents typical reference values from Wrought (ASTM F1472) and Cast (ASTMF1108) material classification compared to Meltio horizontal (XY) and vertical (Z) specimens extracted from 3D printed walls and tensile tested according to ASTM E8.

Material Datasheet

Titanium Alloy – Ti-6Al-4V

Notes

Properties reported in this material datasheet are average of a typical batch. The test coupons were extracted from multiple 3D printed walls. The walls were 3D printed on a Meltio M450 and the testing experiments were done according to ASTM E8 standard.

Disclaimer

Version 2.2

Date April 5, 2021